



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

PRICE et al

Atty. Ref.: 124-1140; Confirmation No. 1233

Appl. No. 10/562,117

TC/A.U. 1791

Filed: December 23, 2005

Examiner: Musser

For: SAFETY HELMETS

\* \* \* \* \*

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 CFR §1.132**

I, Andrew David Foreman, hereby declare as follows:

1. That I am one of the joint inventors of the subject application, a citizen of the United Kingdom, and my address is as stated in my Declaration under Rule 63 (37 CFR §1.63) of record in the subject application.

2. That I am employed by QinetiQ Limited and have assigned my rights in the subject application to QinetiQ Limited.

3. That attached hereto is my curriculum vitae.

4. That I am familiar with the subject application, all of the claims currently being examined and content of the Office Actions of September 30, 2008, May 13, 2009 and December 9, 2009, as well as the prior art documents applied in each of these Actions.

5. In particular I have noted the Examiner's comments in the Office Action of December 9, 2009 on pages 2 and 3 regarding the Wilson (US6, 401, 258) reference. Based upon my training, personal experience and knowledge in this field over the last 15 years I find this statement to be incorrect and wholly unrealistic.


This invention is in the technical field of polymer composite sandwich (PCS) technology. Components or articles made with this technology are precision engineered, structural components. I do not think the Examiner has understood this. This type of composite forms a substantially rigid component as with any polymer composite, but the difference being that there is a sandwich with an inner core of a different material. An engineer designing a safety helmet using PCS technology would be concerned with general engineering principles such as refining mechanical properties like impact resistance, shock attenuation, longevity, reducing weight and moment of inertia, correctly positioning centre of gravity, as well as improving manufacturing techniques. Crucially, in the case of safety helmets, the engineer would, of course, also be concerned with meeting appropriate safety standards.

An engineer designing a PCS safety helmet simply would not have considered the teachings of Wilson because it is describing novelty hats, also known as "cheese hats". The final product is a squashy foam joke hat. This is clothing made for appearance and warmth. The final product is not a safety helmet, not a polymer composite sandwich structure, and is not even a true "composite" as that term is used in the art. I do not understand why the Examiner is trying to rely on this document because it is not the "type" of document a composites engineer would have consulted.

6. Further, concerning Examiner's comments in the Office Action of December 9, 2009 on page 7 regarding the Wilson (US6, 401, 258) reference, the Examiner does not appear to have appreciated that the invention is concerned with safety helmets. This is a specialist field subject to a lot of legislation and strict industry standards and an engineer simply would not have given any consideration to the teachings of a document in the "hat art".

7. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 24 / March / 2010

  
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Andrew David Foreman

# **CURRICULUM VITAE**

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## **P E R S O N A L   I N F O R M A T I O N**

NAME: ANDREW FOREMAN

AGE: 39YRS

ADDRESS: 2 BELLAND DRIVE  
ALDERSHOT  
GU11 3NZ

CHILDREN:3  
AGES: 16, 12 & 9 YRS.

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## **S U M M A R Y   O F   Q U A L I F I C A T I O N S**

5 x GCE 'O' Levels	1986
2 x GCE 'A' Levels	1988
HNC Mechanical Engineering	1991
BEng (Hons) Mechanical Engineering	1994
MSc Innovative Manufacturing and Management	2001

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## **E M P L O Y M E N T   H I S T O R Y**

**QinetiQ Ltd, Farnborough**

*Jul 2004 to current*

CAPABILITY GROUP LEADER, POLYMER COMPOSITES.

Current responsibilities include;

### **1. Capability Group Management.**

- Currently responsible for staff in the composite materials, processes and qualification group.
- Critical human resource roles include development of professional development plans, setting goals and objectives, regular staff appraisal, high levels of communication amongst the team, team motivation.

### **2. Technical Roles.**

- Since becoming CGL critical technical roles have included:

- *TEAM MAST Theme 3 Leader*

Committed technical leadership of the Theme 3 Team MAST programme; a multi-million pound MOD research activity involving the organisation of over 20 industrial and academic research partners. Responsibilities include research programme formulation, budget allocation, technical reporting for consortium, regular dissemination events representing entire theme, monitoring of core programme and innovation programme research status, development and introduction of new partners, management of QinetiQ's Theme 3 research portfolio.

- *Airbus Turn Key Testing Technical Lead*

Technical leader on Airbus Turnkey Testing programmes for A350XWB certification. Responsibilities include formulation of technical teams for delivery, regular progress monitoring and reporting, customer liaison, technical solutions and problem solving. Recent customer feedback demonstrates the level of confidence which Airbus have in my team's technical ability.

- *Chairman of MAHIS DefStan Working Group*

The MAHIS DefStan committee is the MOD primary vehicle for the standardization of military aircrew helmets and I have acted as chairman since its inception in 1998. This initially involve co-ordination of the research effort to develop a dedicated aircrew helmet protection standard, through to the monitoring of research outputs and updates to the DefStan accordingly. The group involves senior MOD contributors from DEC TA, IPTs, OC AI RAFCAM, senior MOD procurement officers and leading UK medics and technical consultants.

- *Technical support to other QinetiQ groups*

I am requested on numerous occasions to provide technical support and composite expertise to a range of groups within QinetiQ. Recently this has included;

- *WatchKeeper Structural Integrity Working Group: Acting as composite expert on behalf of MOD in support of ACP entry into service activity on behalf of WatchKeeper IPT.*
- *Merlin Half-hub subcontractor audit. Acted as composite materials as process expert in support of MOD technical audit of remedial manufacturing work on Merlin Half-Hub component. Work involved critical assessment of manufacturing processes.*
- *Technical sub-contract audits for QinetiQ MetroNet project. I was approached by the QinetiQ MetroNet team to play a crucial role in the technical audit of international subcontractors for the manufacture of composite panels for the LU upgrade programme. The work involved critical assessment of subcontractor materials and processes, as well as staff capabilities, training, equipment, certification, etc.*
- *Technical authority for Stratec® helmet technology. Working on behalf of QinetiQ E&E to transfer Stratec® helmet technology to international subcontractor.*

- *HiVOL WP2.1 Technical Lead*

Responsible for delivery of materials screening data to support AeroStructures strategy in 3D preforming development and commercial exploitation.

### **3. Business development.**

- Since becoming CGL I have developed a turn-key testing strategy for the MPQ capability group which has led to multi-million pound business for the team. Some examples include:
  - *A350XWB Turnkey Testing Group A and Group B.*
  - *A350XWB Turnkey Testing 2*
  - *Multi-axial joint testing for A350XWB*
- In addition to securing this work I have also played a key role in expanding our customer base into mainland Europe. This effort culminated in two recent bids for Airbus Spain (decision pending).
- I am also directly involved in the strategic development of the composites area which is supported by our successful QIB investment application to undertake commercial technology development in the NGCW and MAAXIMUS programmes. Both of these programmes are now yielding commercial interest with a view to creating license deals and other return on investment in 2010.

### **QinetiQ Ltd (formerly DERA), Farnborough**

*Jul 1998 to 2004*

PRINCIPAL SCIENTIST, POLYMER COMPOSITES GROUP.

Projects and responsibilities include;

#### **1. Technical Lead of MoD research programme on Shape Memory Alloy reinforcement in Polymer Composites.**

- Responsible for technical delivery of the research programme investigating the use of SMA's to enhance composite damage tolerance.

#### **2. QinetiQ Technical Lead for Non-Crimp Fabric research within DTI/Airbus CASCADE programme.**

- Formulation and management of QinetiQ's research responsibilities including technical plan, resource management and tasking.
- Regular reporting through technical reports to DTI and Airbus UK.
- Regular reporting at project management and work package leader meetings.

#### **3. Assistant project co-ordinator of EU FP5 research programme 'FALCOM' on assessment and certification of Non-Crimp Fabrics.**

- Technical lead for QinetiQ work activities.
- Completion of technical reports and cost reports for CEC.

#### **4. QinetiQ project leader for DTI ADM (additional dissemination of materials).**

- Development of materials database (MATDAT) to compile data generated on DTI funded research programmes.
- Completed as part of 5 partner ADM programme which has developed a DTI polymer composites web portal <http://www.materialssolutions.info/>.
- Regular reporting and presentation of tools to DTI.

**5. Work Package Leader for DTI/BAE funded AMCAPS II (Affordable Manufacture of Composite Aircraft Primary Structure).**

- Formulation and management of research programmes for all partner organisations involved (BAe, DERA, BTi, Courtaulds, Hexcel, Cytec, NPL)
- Management of DERA's research responsibilities, including technical plans, resource management and staff tasking.
- Regular reporting through technical reports to DTI and BAe.

**Defence Evaluation Research Agency, Farnborough.** *Jul 1995-1998*  
SENIOR SCIENTIST, POLYMER COMPOSITES GROUP.

Projects and responsibilities included;

**1. Programme manager for DTI Composites Performance and Design Programme - Project area 4f; Composite machining and pre-treatment.**

- Develop technical, dissemination and cost plans to meet the tender.
- Develop and monitor sub-contract to National Physical Laboratory.
- Form Industrial Advisory Group with representatives from key groups from the UK composites industry.
- Produce critical review on current levels of quality and standardisation in machining and pre-treatment throughout the UK composites industry.

**2. Technical leader for materials selection, design and manufacture in MOD funded lightweight aircrew helmet programme.**

- Co-ordinate research team developing materials and manufacturing capabilities for use in future lightweight aircrew helmets.
- Evaluation of new materials solutions for shell components, including fibre reinforced skins, and energy absorbing cellular foams.
- Development of manufacturing processes.

**3. Task leader for damage tolerance item of MOD funded composite research programme.**

- Development of technical research plan to meet the customer goal of improving the damage tolerance of composite materials.
- Monitor extra mural research at Bristol University on hollow fibres.
- Assessment of 'off the shelf' materials developments, e.g. interleaving, Z-pinning, new materials developments.

**Defence Evaluation Research Agency, Farnborough.** *Jul 94 to Jul 95*  
HIGHER SCIENTIFIC OFFICER, POLYMER COMPOSITES GROUP.

Projects and responsibilities Included;

1. OD funded composite materials research and development programme.
2. EC funded Brite Euram - Damage Tolerance of Sandwich Structures.
3. Met Police funded research programme on development of lightweight stab resistant protective clothing.

**Royal Aircraft Establishment, Pyestock.**  
ASSISTANT SCIENTIFIC OFFICER.

Sep 1988 to Sep 1991

Projects and responsibilities Included;

1. Main operator of gas standards measurement laboratory.
2. Assist in the final build stages of a mobile emissions measuring facility.
3. Development of ICAO gas turbine engine emissions database.
4. Gaseous emissions measurements from gas turbine combustion rigs.

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## **E D U C A T I O N**

### **Farnborough Sixth Form College.**

PROSPECT ROAD, FARNBOROUGH, HAMPSHIRE.

### **Farnborough Technical College.**

BOUNDARY ROAD, FARNBOROUGH, HAMPSHIRE.

### **University of Leeds.**

WOODHOUSE LANE, LEEDS, WEST YORKSHIRE.

### **University of Loughborough.**

LOUGHBOROUGH, LEICESTERSHIRE.

1999 - 2001